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LIFE CARE PLAN

AND

COST ANALYSIS

FOR

TOMMY BYRD

Prepared: January 8, 2021

A handwritten signature in black ink that reads "Kristi B. Bagnell".

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A handwritten signature in black ink that reads "David J. Altman". Above the signature, the letters "MD" are written in a smaller font.

David J. Altman, MD, CLCP

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I. LIFE CARE PLAN INTRODUCTION

Life care planning represents a process of analyzing the health care goods and service needs of individuals with disability or handicapping conditions resulting from injuries or chronic diseases. The life care plan is a dynamic document based upon standards of practice, comprehensive assessment, and data analysis and research that provides an organized and concise plan for projected future medical and medically related goods and services and associated costs.

Through the life care planning process, a systematic and logical approach is utilized to trace all of the needs relating from the disability to the end of life expectancy. This process requires the coordination and management of information from many sources. Health care professionals are often tasked with the development of life care plans. Medical, social, psychological, vocational, educational, and rehabilitation data are taken into consideration to the extent that they are available and applicable. Medical literature germane to critical issues in the plan is surveyed to reflect current concepts of care for patients and disease state management. The impact of aging with disability and the progression of disease are reflected. The life care plan provides for services that are needed to prevent or significantly reduce known complications or comorbidity over time. Current cost data are utilized representing the usual and customary costs for goods and services in the geographic domain where the majority of care is anticipated.

The life care plan serves as a guide for those with disability or chronic disease, their family members, case managers and health care providers. It is not a prescription for care, but represents a blueprint for anticipated health care and other related needs based upon reasonable medical and rehabilitation probability and current concepts of patient care management. The information serves those charged with the fiduciary responsibility to provide for future care. The life care plan is often used by financial administrators tasked with selecting appropriate investment strategies to preserve funding over the life of the patient.

This life care plan is prepared for Tommy Byrd, a 62.7-year-old African American male who sustained a left middle cerebral artery ischemic stroke after a lumbar fusion revision and extension on 11/15/16. At almost 4 years post-stroke, Mr. Byrd continues to experience aphasia and severely impaired comprehension for which he is undergoing speech/cognitive therapy. He was treated for non-epileptic seizures with Dilantin. Mr. Byrd has been diagnosed with postoperative flatback syndrome and continues to endorse severe pain with radiculopathy affecting his ambulation. Further lumbar surgery is planned by his spine surgeon. These sequelae have adversely affected Mr. Byrd's activities of daily living and overall quality of life.

II. MEDICAL RECORDS REVIEW

Medical records from the following health care providers were received and reviewed:

- Atlanta Veterans Administration Medical Center, Atlanta, Georgia
- DeKalb County Service Board, Atlanta, Georgia
- Baltimore Veterans Administration Medical Center, Baltimore, Maryland
- PruittHealth- Brookhaven, Atlanta, Georgia

Records from the Atlanta Veterans Administration Medical Center are reviewed and document that Tommy Byrd was admitted on 11/15/16 for a lumbar fusion revision and extension due to a previous anterior lumbar interbody fusion with nonunion at L2-L3. Mr. Byrd was also noted to have pars defects bilaterally. The procedures performed are listed:

- Lumbar laminectomy with partial medial fasciectomy and foraminotomies, L2-L3, L3-L4, L4-L5
- Transforaminal lumbar interbody fusion, L3-L4
- Use of biomechanical intervertebral device, L3-L4
- Posterior spinal fusion, L2-L3, L3-L4
- Placement of bilateral pedicle screws, L2, L3, L4
- Use of both locally collected bone autograft, as well as allografts
- Use of intraoperative neurologic monitoring with SSEPs and triggered EMGs

Mr. Byrd was documented to have an “uneventful perioperative course” and then was transferred to the Surgical ICU for nursing care.

On 11/16/16, it was noted that Mr. Byrd was “restless overnight postoperatively until 3 AM.” His pain was reported to be well controlled and there were “no acute events” through the night. Mr. Byrd’s blood pressure was recorded as 166/92 and oxygen saturation was 100% on room air. On examination, Mr. Byrd was sleepy but following commands. He demonstrated unlabored breathing and his dressings were clean, dry, and intact. The Psychiatry service was consulted for “medication management” and physical and occupational therapy evaluations were ordered. A nursing addendum indicates that Mr. Byrd was alert but still restless and trying to get out of bed. He was “very anxious and looks that scared.” The Psychiatry service was contacted and ordered Haldol to be used as needed.

A psychiatry consult entered on 11/16/16 notes that their service was consulted due to Mr. Byrd’s agitation. He had been disregarding commands and trying to pull out

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his lines and drains "since he woke up from anesthesia around 6:30 pm yesterday." Mr. Byrd had received two doses of Haldol and one dose of Ativan. Upon interview, Mr. Byrd was documented to be restless, oriented to self and type of building only, and ignored other questions. A medical work up had been completed, revealing only an elevated CPK level. According to remote charts, Mr. Byrd was noted to have a psychiatric diagnosis of depression and his outpatient medications included citalopram, nortriptyline, trazodone, Depakote, and Geodon. Other than Geodon, all medications had been held, as Mr. Byrd was NPO. The assessment was "hyperactive delirium" in the context of recent surgery and anesthesia, ICU stay, and a missed dose of several medications. It was recommended to give IM Haldol and IM Benadryl as needed, and to avoid benzodiazepines due to the possible paradoxical effect of hyperactive delirium.

The Physical and Occupational Therapy services attempted evaluations of Mr. Byrd on 11/16/16. The occupational therapist reported that Mr. Byrd was unable to verbalize understanding of instructions and the physical therapist documented that he was too confused to continue the treatment session.

A follow up consult was provided by the Psychiatry service on 11/16/16. Veteran reports were further reviewed and noted that Mr. Byrd "had mood swings all of his life." He had reported racing thoughts, little requirement for sleep, poor concentration, boredom and inability to follow through with tasks. The records reflected that Mr. Byrd had experienced episodes of frequent fights and arguments as well as irritability. Additional laboratory studies were recommended by the Psychiatry service.

Mr. Byrd received labetalol 10 mg on 11/16/16 due to persistent tachycardia and hypertension.

By 11/17/16, the Orthopedic Surgery service noted that Mr. Byrd was oriented, in excellent spirits, and ready to go home. He denied chest pain, shortness of breath or palpitations. Standing lumbar X-rays were planned once Mr. Byrd was ambulatory.

The occupational therapist noted on 11/17/16 that Mr. Byrd transferred from supine to sitting on the edge of the bed with minimal assistance but could not support himself in standing using a rolling walker with maximal assistance. He then required maximal assistance to return to the supine position.

The Orthopedic Surgery service noted on 11/18/16 that Mr. Byrd was "not cooperating" and not following commands. His surgical drain was discontinued, and his home oral psychiatric medications were restarted. The social worker recommended a subacute rehabilitation (SAR) referral.

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The physical therapist reported that during his 11/18/16 therapy session, Mr. Byrd stood with assistance for 1-2 seconds, then collapsed with need of total assistance for safe return to bed. It was recommended that the Lift Team be present for out of bed transfers.

A nursing entry on 11/19/16 documents that Mr. Byrd exhibited a very unsteady gait and poor appetite. There was no agitation. He continued with tachycardia, occasionally to 125-140, which had been treated with labetalol twice during the shift. The Orthopedic Surgery service noted that Mr. Byrd had not been cleared to be discharged by the Physical Therapy service.

On 11/20/16, Mr. Byrd reportedly refused transfer to SAR. The Physical Therapy service recommended 24-hour supervision with home health physical therapy three times weekly for four weeks for gait training, transfer training and therapeutic exercise.

A Code 44 was called for Mr. Byrd on 11/22/16 when he attempted to leave the Surgical ICU. He was noted to display confusion and was unable to say why he was admitted to the hospital. His most recent EKG reportedly showed only a mildly prolonged QTc and Haldol was given. Continued cardiac monitoring was recommended if Mr. Byrd required the use of repeated Haldol. His son, Lorenzo Byrd, was contacted and stated that Mr. Byrd "was not confused nor delirious prior to the surgery." He reported that his father had been living on his own and able to care for himself independently.

The Psychiatry service evaluated Mr. Byrd on 11/22/16. He was noted to be alert but oriented x 0 and slurring his words. He could not follow verbal commands. The medical team reported that Mr. Byrd was alert and oriented x 3 during the previous few days and that this was an acute change in his mental status. The Psychiatry service assessed that Mr. Byrd was experiencing delirium and recommended to taper opiate medications as soon as possible. They also suggested discontinuation of cyclobenzaprine, nortriptyline and famotidine due to the concern for deliriogenic effects. They also recommended to order studies secondary to Mr. Byrd's altered mental state, including "UA, Chest X-ray, CBC, CMP, Ammonia and CPK" as well as a neurological evaluation.

On 11/22/16, the Neurology service evaluated Mr. Byrd due to altered mental status. The assessment was noted as toxic/metabolic encephalopathy, likely related to polypharmacy and hospitalization. There were no focal deficits demonstrated to suggest cerebrovascular accident (CVA) nor evidence or risk factors for seizure activity reported. They agreed with the medication recommendations made by the Psychiatry service and suggested limited use of Haldol to prevent worsening of the delirium. The Neurology service also recommended obtaining an RPR and B12

level. They documented, "No neurological imaging indicated at this time. Defer EEG."

On 11/23/16, the Orthopedic Surgery service noted that Mr. Byrd's mentation had been "waxing and waning, but overall he appears to be moving in the right direction. Removing a lot of those medications certainly seemed to have helped." It was also reported that his postoperative X-rays demonstrated appropriate positioning of the screws and cage, with no signs of early failure. The Orthopedic Surgery service planned a discussion with Mr. Byrd's family regarding the safety of taking him home.

The Neurology service entered a consultation note on 11/23/16. Mr. Byrd was reported as alert and oriented x 1 with anomia aphasia and no dysarthria. He followed commands intermittently. Mr. Byrd's motor and sensory examinations were noted to be intact and he demonstrated 2+ and symmetric deep tendon reflexes. Mr. Byrd's speech deficits were documented as "concerning in the setting of being otherwise alert and awake." A brain MRI was recommended without contrast and if negative, an EEG was recommended.

Mr. Byrd was evaluated by the Psychiatry service on 11/24/16. He was noted to be alert and oriented x 1 with rambling and incoherence. He had difficulty following verbal commands, could not protrude his tongue, or reach with his right or left hand upon instruction. Mr. Byrd was diagnosed with delirium and altered mental status without volition in any way, as well as unspecified bipolar disorder. Tapering off opiates and delirium precautions were recommended.

On 11/25/16, Mr. Byrd underwent a brain MRI/MRA without contrast that was interpreted to demonstrate the following:

- Acute to early subacute left MCA infarct affecting the territory associated with inferior division branch, see with associated findings on MRA.
- MRA: There is a cut off sign at the left MCA bifurcation/trifurcation, likely reflecting an occluded anterior division branch. There is associated paucity of M3 branches in the infarct zone. The other major arterial intracranial structures are within normal limits.
- Background of minimal white matter changes of chronic small vessel ischemia.

The Neurology service documented that the findings were consistent with Mr. Byrd's receptive greater than expressive aphasia and subtle right sided weakness, which was much more apparent after Haldol had worn off. It was noted that the "mechanism is cryptogenic at this point, although suspect cardioembolic. Degree of comprehension impairment is significant. Recommend to complete stroke evaluation." It was also recommended to initiate Mr. Byrd on Aspirin 81 mg daily and Crestor 20 mg, as well as to obtain a transthoracic echocardiogram (TTE) and carotid

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dopplers. The Neurology service also recommended to place Mr. Byrd on telemetry and to order a HbA1C, lipid panel, TSH and RPR. Speech therapy and social work consults were suggested, and it was noted that Mr. Byrd might need placement due to comprehensive deficits.

On 11/27/16, laboratory studies were resulted as within normal limits for TSH and lipid panel levels except for HDL (38, low) and LDL/HDL (3.4, high). Hemoglobin A1C was 5.7. The RPR was non-reactive.

On 11/28/16, the Occupational Therapy service recommended continued treatment for cognition, ADL and IADL retraining. The Physical Therapy service noted that Mr. Byrd was independent getting in and out of bed and a chair and was walking in the room without an assistive device. He demonstrated independence with balance and a steady gait pattern without need for a rolling walker.

The Psychiatry service signed off from Mr. Byrd's care on 11/28/16. It was noted that he remained incoherent but was jovial and not aggressive towards himself or others.

A carotid doppler was completed on 11/28/16 and interpreted to show no hemodynamically significant stenosis involving the right internal carotid artery and the peak systolic and end-diastolic velocities were in keeping with a 50-69% stenosis. The vertebral arteries were patent and antegrade bilaterally.

Mr. Byrd was discharged from Atlanta VA Medical Center to subacute rehabilitation on 12/19/16. Follow up was scheduled with the Orthopedic Surgery service on 01/19/17.

Records from PruittHealth- Brookhaven are reviewed and note that Mr. Byrd was admitted to this facility on 12/19/16 for inpatient rehabilitation. He was reported as confused with impaired short-term memory. Mr. Byrd required assistance with all activities of daily living due to limited mobility. Physical, occupational and speech therapy were ordered. Speech therapy assessed that he exhibited moderate fluent aphasia characterized by intermittent anomia, tangential speech and language or confusion. Language deficits were compounded by impaired judgement and increased sensitivity to testing/questioning. With physical therapy, Mr. Byrd was documented as very unsteady and he refused a gait belt or to use a walker. He required stand-by assistance for ambulation.

Mr. Byrd continued in rehabilitation at PruittHealth, and by 03/13/17, he was reported as alert and oriented, making good progress in physical and occupational therapy. He was independent for dressing, eating, ambulation, hygiene, toilet use, bed mobility, and transfers. Mr. Byrd remained at PruittHealth through 03/18/17.

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Mr. Byrd presented to the Baltimore VA Medical Center Emergency Department (ED) on 03/24/17 due to the need for medication refills. He reported that he was transferring care from Atlanta and had an appointment scheduled for the coming week in the clinic. It was documented that Mr. Byrd had undergone a “recent L-spine surgery complicated by left MCA stroke around November 22 – 25, 2016, with residual aphasia and right-sided weakness.” The ED physician ordered neurology and orthopedic consults as well as an EKG and laboratory studies to expedite Mr. Byrd’s follow up. Most of his medications were renewed for a 30-day supply. Hydroxyzine was decreased in dose to 50 mg as it was unclear as to its indication. The EKG demonstrated normal sinus rhythm at 79 beats per minute with no ischemic or arrhythmogenic changes.

A primary care outpatient note was entered on 03/29/17. Mr. Byrd presented to establish care with the Baltimore VA with his son, Lorenzo, who provided the vast majority of the history. A speech therapy referral was requested due to Mr. Byrd’s impaired comprehension and aphasia. He also reported lower back pain with radiation to the lower extremities with some improvement since surgery. Prescriptions for gabapentin, Flexeril, diclofenac and lidocaine patches were given. Referrals for dermatology (due to history of hidradenitis suppurativa), speech therapy, mental health services at MHARC and social services for case management were placed as well.

Mr. Byrd was evaluated in the Neurology clinic on 04/21/17 for follow up of left MCA stroke. Cognition deficits since the stroke were reported in language and memory and he was noted to have a Wernicke type aphasia which had improved with speech therapy during his rehabilitation stay. Mr. Byrd also was observed to have three episodes of impaired consciousness. A brain/neck CT angiogram, 30-day Holter monitor, and TTE with bubble were ordered as well as an EEG. A lumbar spine CT was also arranged to evaluate Mr. Byrd’s hardware and spine alignment. Aspirin 81 mg daily was recommended for secondary stroke prevention and a Depakote level was obtained.

A complete CT angiogram of the head was completed on 05/04/17. The findings were documented as follows:

- Decreased attenuation in the left temporal/parietal regions, with minimal ex vacuo dilation of the left lateral ventricular atrium, as well as adjacent sulci. The CSF spaces were otherwise normal in size, shape and attenuation. Brain parenchyma is otherwise normal in attenuation. Minimal intracranial atherosclerosis.
- The origins of the vertebral and common carotid arteries appear normal, noting streak artifact from the shoulders. Common origin of the innominate and left common carotid arteries. Vertebral arteries appear to be codominant in the neck. The origins of the carotid and vertebral arteries appear normal. Internal

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carotid artery origins appear normal bilaterally with 0% stenosis despite arteriosclerosis of the carotid bulbs.

A lumbar spine CT completed on the same day was interpreted to demonstrate the following:

- Unchanged since the previous examination, allowing for modality (MRI)
- Extensive degenerative changes at the levels of previous fusion, with moderate-marked loss of disc height, and vertebral body sclerosis. Subsidence of disc spacers at L2-3, L3-4.
- Extensive scar tissue at L4-5.
- Facet arthropathy and loss of disc height contribute to neural-foraminal narrowing at L4-5 and L2-3.

Mr. Byrd was admitted to the Baltimore VA Medical Center on 05/11/17 secondary to recurrent episodes of an impaired level of consciousness/syncope. An EKG obtained in the ED demonstrated T wave inversion with ST segment changes. A non-contrasted brain CT was completed and interpreted to demonstrate no evidence of an acute intracranial event but chronic posterior left middle cerebral artery territory infarct. It was noted that a recent TTE was interpreted to show no significant abnormalities with a left ventricular ejection fraction of 65%. Mr. Byrd was admitted due to concerns for seizure activity, as a recent Depakote level was subtherapeutic. Neurology and Cardiology consults were placed.

On 05/12/17, Mr. Byrd was evaluated by the Cardiology service. By report, troponin levels were negative x 3 and telemetry was without events overnight, except for an episode of sinus tachycardia that resolved. The Cardiology service noted that a primary cardiac cause as an etiology for Mr. Byrd's syncopal episodes was unlikely. They agreed with neurology consultation and recommended continuation of aspirin and statin medication.

The Neurology service provided a consultation for Mr. Byrd on 05/12/17. He was noted to be at a higher seizure risk due to his prior stroke involving the temporal lobe. They recommended that Mr. Byrd be monitored for arrhythmias and to check a new valproic acid level with adjustment accordingly.

Mr. Byrd underwent an EEG on 05/19/17. The study was interpreted to demonstrate intermittent left temporal slowing suggestive of a relatively localized, nonspecific cerebral dysfunction within the region. No epileptiform discharges were seen. It was noted that a non-epileptiform EEG did not exclude the possibility of epilepsy.

An ED note from 05/23/17 documented that Mr. Byrd presented due to recurrent episodes of loss of consciousness resulting in ambulatory dysfunction, suspected seizures, and progressive confusion. He reportedly had been transitioning to

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Kepra after a recent hospitalization and outpatient EEG. A head CT was interpreted to demonstrate no acute CVA or hemorrhage. Laboratory investigations revealed only a mildly elevated creatinine level. Mr. Byrd was admitted for observation.

On 05/24/17, the Neurology service consulted and reported that they had increased Mr. Byrd's Valproate dose to achieve a therapeutic level which resulted in more somnolence, worsening aphasia, and gait impairment. He therefore was transitioning over to Kepra. The head CT from the previous day was reviewed and interpreted to show encephalomalacia affecting the left parietal and anterior temporal lobes. The Neurology service recommended to discontinue Divalproex, Nortriptyline, cyclobenzaprine, and hydroxyzine due to their sedating effects, and to continue Kepra at 750 mg twice daily. A brain MRI was ordered as well as physical and occupational therapy evaluations. Mr. Byrd was discharged to home on 05/25/17. Mr. Byrd was to undergo an outpatient MRI.

A Neurology follow up visit occurred on 06/23/17. Mr. Byrd and his son reported increased lability since his stroke. Mr. Byrd was frustrated by his speech difficulties and inability to drive. He also endorsed severe back pain which was worse with prolonged sitting or standing and keeping him up at night. Mr. Byrd was initiated on phenytoin 300 mg daily. It was noted that he should continue Kepra but that it might not be an appropriate medication given his mood changes. For his back pain, Mr. Byrd's citalopram was changed to Cymbalta 20 mg daily, and a consult was placed for Pain Management. Remeron was initiated due to his mood and sleep difficulties.

On 06/25/17, Mr. Byrd was admitted to Baltimore VA Medical Center due to loss of consciousness. It was noted that since his left parietal CVA in November of 2016, he had been experiencing frequent episodes of loss of consciousness/seizures and was followed by neurology. The episodes were occurring approximately three times weekly. Mr. Byrd's son witnessed that he suddenly fell backwards and hit his head on the refrigerator. Mr. Byrd did not remember the fall and woke up on the floor. Mr. Byrd was noted to have a recent Holter monitor on 05/12/17 demonstrating a lack of cardiac arrhythmias. Head CT scan was negative for acute event. Neurology, physical therapy, occupational therapy and social work consults were placed.

The Neurology service evaluated Mr. Byrd on 06/26/17. His phenytoin dose was increased, and he was scheduled for admission to the epilepsy monitoring unit. It was recommended during the course of this hospitalization that Mr. Byrd be maintained on levetiracetam 750 mg twice daily and phenytoin was increased. 24-hour EEG monitoring was planned by Neurology. It was additionally noted that Mr. Byrd's family felt they could no longer care for him at home and the social worker sent out applications to group homes and meals on wheels to help the family in the meantime. Mr. Byrd was discharged to home on 06/28/17.

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Mr. Byrd was provided an orthopedic consultation on 06/30/17. On examination, he endorsed low back pain in seated straight leg raising and supine straight leg raising was limited to about 70 degrees. X-rays of the neck and low back were ordered as well as a urine drug screen. It was noted that Mr. Byrd would likely not be a candidate for surgery.

On 07/06/17, Mr. Byrd was evaluated by the Chronic Pain Management service. He reported improvement with oxycodone in the past and was unable to take tramadol due to possible seizures. Mr. Byrd was also taking diclofenac, duloxetine, and gabapentin. He was instructed to increase the duloxetine dosage from 20 mg to 40 mg and to discontinue the diclofenac. Thermacare devices were recommended and Mr. Byrd was referred to the Prosthetics service for a soft lumbar corset with reusable heat gel pack. It was suggested that gabapentin be tapered off as his pain was deemed nociceptive rather than neuropathic. Mr. Byrd was referred for mental health services. Oxycodone 5 mg, ½ tablet prior to activities was prescribed.

Mr. Byrd was admitted to Baltimore VA Medical Center on 08/07/17 due to falls with impaired consciousness occurring three times weekly. During the course of his hospitalization and he did not have any of his typical events. EEG was interpreted to demonstrate focal slowing over the left, maximal over the left temporal region, and no clear interictal discharges or seizures, despite tapering off Dilantin during EEG monitoring through 08/11/17. Dilantin was restarted upon discharge. An ambulatory EEG was to be considered if he continued to have episodes of falling. Mr. Byrd was discharged to home on 08/11/17 and was to be scheduled in the Stroke clinic.

Mr. Byrd was seen in follow up in the Epilepsy Fellow Clinic of Baltimore VA Medical Center on 09/07/17. He reported one episode of passing out after arising from a chair. An Ambulatory EEG was recommended to better characterize the episodes and Dilantin was continued.

During a primary care visit on 11/27/17, it was recommended that Mr. Byrd utilize a cane or rolling walker for assistance around the home. He was referred to the Physical Medicine & Rehabilitation service and PT was consulted for education in use of assistive devices. A TENS unit was ordered and diclofenac cream and Flexeril prescriptions were refilled.

Mr. Byrd was provided a follow up visit with the Neurology service on 12/07/17. He was instructed to continue Dilantin 400 mg nightly and an ambulatory EEG was arranged.

On 04/05/18, Mr. Byrd presented to the Neurology service in follow up. He had not undergone the ambulatory EEG; however, he had not experienced further episodes of "falling out." Mr. Byrd had discontinued Flexeril and melatonin. No medication changes were recommended.

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Mr. Byrd presented to the Baltimore VA Medical Center ED on 06/14/18 and was treated for abdominal pain and an early perineal abscess.

On 06/15/18, Mr. Byrd was seen in follow up by the Primary Care service. He demonstrated epigastric tenderness and significant weight loss on examination. It was recommended that Mr. Byrd hold Naproxen due to concern for peptic ulcer. He was initiated on pantoprazole 40 mg daily.

Mr. Byrd established care with the Geriatric Psychiatry service on 10/15/18. He was diagnosed with moderate major depressive disorder and instructed to continue mirtazapine and duloxetine at present doses. Psychotherapy was offered and he was encouraged to exercise and consume a healthy diet.

During his 11/05/18 visit with the Geriatric Psychiatry service, Mr. Byrd was noted to be agitated and tearful. His son stated that he would like his father to be moved to another home or facility because he "doesn't feel like he can live with him." Mirtazapine was raised to 30 mg daily.

On 12/10/18, Mr. Byrd was evaluated by the Geriatric Psychiatry service. It was noted that his social worker was in the process of searching for alternative housing. Major vascular neurocognitive disorder was added to Mr. Byrd's diagnoses. No changes in medication were recommended.

The Neurology service provided a follow up visit for Mr. Byrd on 03/21/19. He was accompanied by a friend who reported that she had witnessed one event about six months prior in which Mr. Byrd fell and appeared confused. He was instructed to continue phenytoin ER 400 mg daily.

On 04/22/19, Mr. Byrd underwent a speech therapy evaluation due to aphasia. He was noted to have moderate fluent aphasia affecting receptive and expressive language modalities. Verbal expressions were fluent and a relative strength, yet word retrieval difficulties were noted. Mr. Byrd exhibited reduced auditory comprehension for stimuli of increased length and complexity and conversation. Reading comprehension beyond the very basic level and written expression at the word level were impaired. Mr. Byrd demonstrated an improvement in following directions compared to previous speech therapy evaluations in 2017. His prognosis for improvement was reported as questionable due to the time post-onset as over two years. However, it was recommended that Mr. Byrd undergo treatment with a focus on compensatory strategies. He began attending sessions routinely.

Mr. Byrd had a follow up visit with the Geriatric Psychiatry service on 06/04/19. He reported less conflict since living with his brother. Mr. Byrd was offered stroke support groups and psychoeducation was given to the family on dementia. He was

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instructed to continue mirtazapine and duloxetine at present dosages and refills were provided.

On 07/22/19, Mr. Byrd underwent an audiological evaluation. Based upon the results, hearing aids were not recommended due to the finding of normal hearing sensitivity across most of the speech frequency range for both ears.

An EGD and colonoscopy was performed at Baltimore VA Medical Center on 07/24/19 which demonstrated small hiatal hernia, chronic gastritis in the gastric antrum, and duodenal inflammation in the first and second part of the duodenum as well as a single polyp in the sigmoid colon.

During his 09/16/19 Geriatric Psychiatry visit, Mr. Byrd was continued on mirtazapine 30 mg daily and duloxetine 40 mg daily.

Mr. Byrd presented to the Baltimore VA Medical Center ED on 10/02/19 due to chronic back, neck, and right shoulder pain. X-rays were interpreted to demonstrate hardware in good position and good alignment of the lumbosacral spine. Mr. Byrd was administered Toradol IM and a Lidoderm patch. He was referred to the orthopedic spine surgeon for evaluation.

A Primary Care Outpatient Note from Baltimore VA Medical Center dated 10/11/19 reflected that Mr. Byrd reported increased back pain over the prior week. It was recommended that he wear a back brace and follow up with the Orthopedic Surgery service. An MRI was ordered.

On 10/22/19, Mr. Byrd was evaluated in the Primary Care clinic due to back pain. On examination, he demonstrated 4.5/5 right upper extremity strength and an antalgic gait using a cane. A lumbar spine MRI was ordered, and Mr. Byrd was encouraged to follow up with the Orthopedic Surgery service.

A lumbar spine MRI on 10/24/19 was interpreted to demonstrate an L4-5 bulge and ligamentum flavum thickening resulting in moderate spinal canal stenosis. There was marked bilateral neural foraminal stenosis secondary to bulging of the disc and facet hypertrophy.

Mr. Byrd presented to the Orthopedic Surgery service on 11/21/19. He reported radicular (right greater than left) back pain described as severe and sharp with numbness and tingling in the lower extremities. The pain was noted to affect his ambulation, necessitating a cane for assistance. The lumbar MRI from 10/24/19 was reviewed, and Mr. Byrd was referred to an orthopedic spine surgeon for surgical consideration. Daily stretching exercises were recommended, and a physical therapy consult was ordered to assist Mr. Byrd with muscle stretching. He was prescribed meloxicam 7.5 mg daily as needed as well as diclofenac gel to apply three times daily for muscle stiffness.

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An ankle brachial Index and arterial waveform analysis was performed on 11/22/19 at Baltimore VA Medical Center, which was interpreted to show evidence of moderate hemodynamically significant stenosis of the right aorta, and/or right iliac, and/or lower extremity arterial system as well as severe perfusion deficit to the right great toe.

The medical record reflects that speech therapy sessions with Mr. Byrd occurred on 06/10/19, 06/14/19, 6/24/19, 07/01/19, 07/08/19, 07/15/19, 07/22/19, 07/29/19, 08/05/19, 08/12/19, 08/26/19, 09/09/19, 09/23/19, 10/07/19, 10/21/19, 10/28/19, 11/04/19, 11/25/19 and 12/09/19. During his most recently available speech therapy evaluation, Mr. Byrd was assessed with aphasia following cerebral infarction. He demonstrated fluent aphasia affecting all language modalities with severely impaired comprehension.

A Geriatric Psychiatry Visit from Baltimore VA Medical Center on 12/09/19 reflected that Mr. Byrd had difficulty understanding what others were saying to him, making him feel depressed. Insight, judgment and impulse control were fair. It was opined that his major neurocognitive disorder was due to a vascular etiology. He was also assessed to have major depressive disorder and cannabis use disorder in remission. Mirtazapine and duloxetine were continued.

Mr. Byrd was evaluated by the Geriatric Psychiatric service on 12/22/19. He reported that he had trouble understanding what people were saying, which made him feel depressed. Mr. Byrd stated that he "doesn't have problems expressing himself" and that he could tend to his basic activities of daily living. It was recommended that Mr. Byrd continue with speech therapy. He was continued on mirtazapine 30 mg daily and duloxetine 40 mg daily. The medical record reflects that Mr. Byrd was also taking gabapentin, phenytoin, and sildenafil.

A urine toxicology screen performed at Baltimore VA Medical Center on 01/02/20 was resulted positive for marijuana and the geriatric psychiatrist was alerted.

An Orthopedic Surgery Note entered on 01/03/20 is reviewed and documents that Mr. Byrd reported severe back and leg pain upon presentation, despite prior lumbar surgery. On examination, he was documented to stand decompensated forward and was described as grossly neurologically intact in both lower extremities. An MRI of the lumbar spine was reviewed and documented to show adequate decompression at L3-4 but possible residual compression at L2-3 and L5. The fusion was stated to be "impossible to evaluate" on the MRI. The assessment was that Mr. Byrd was experiencing postoperative flatback. It was noted that he would "probably be a fairly poor candidate for a revision lumbar fusion with osteotomy." However, X-rays of the spine were ordered to assess whether there was a problem with the instrumentation or fusion. Mr. Byrd was instructed to return to "discuss his treatment and plan for any interventions going forward."

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An interlaminar lumbar epidural steroid injection was performed at the L4-L5 level at the Baltimore VA Medical Center on 01/06/20.

Mr. Byrd attended three physical therapy sessions between 01/16/20 and 02/03/20 at Baltimore VA Medical Center due to recurrent lumbar pain with radiculopathy. He continued to attend outpatient speech therapy routinely with reported improvements in comprehension.

An intravenous lidocaine infusion was provided through the Baltimore VA Medical Center on 01/30/20 due to Mr. Byrd's diagnosis of post-laminectomy syndrome of the lumbar spine and post stroke pain. He reported little improvement of his right lower extremity pain following the epidural steroid injection.

A Primary Care Outpatient Note from Baltimore VA Medical Center dated 02/03/20 notes that Mr. Byrd continued with lumbar spine pain and had undergone epidural steroid injection without any significant improvement. He reported some improvement with lidocaine infusions. He had stopped gabapentin and reported he no longer wanted to take it. An increase in meloxicam was requested and he advised that he was willing to try acupuncture. It was documented that Mr. Byrd continued to reside with his brother.

The Orthopedic Surgery service at Baltimore VA Medical Center evaluated Mr. Byrd on 02/11/20 due to low back pain with bilateral radiculopathy to discuss surgical options. He reported difficulty walking long distances as a result. A lumbar MRI from 10/24/19 was reviewed in conjunction with scoliosis views from 01/02/20. A revision decompression to include L4-5 as well as deformity correction via multilevel anterior lumbar interbody fusion, TLIF and/or posteriorly based osteotomy was recommended. Dr. Gelb, Orthopedic Surgery, concurred with the proposed surgery during a visit on 03/05/20.

An intravenous lidocaine infusion was repeated for Mr. Byrd at the Baltimore VA Medical Center on 03/03/20.

A Geriatric Psychiatry Attending Note from Baltimore VA Medical Center on 06/12/20 notes that Mr. Byrd continued to reside with his brother. He denied persistent depression and reported good sleep. He was alert and oriented to person, place, and time and able to have clearer conversations. Major neurocognitive disorder due to vascular etiology and major depressive disorder were diagnosed in addition to cannabis use disorder, unspecified. Random urine drug screens were recommended in addition to serial cognitive testing. Mirtazapine and duloxetine were refilled.

Mr. Byrd underwent a Neuropsychological Assessment on 06/23/20 via telephone through Baltimore VA Medical Center. He reportedly resided with his brother and his

brother's family. On a typical day he watched television and prepared or went out to buy food. He no longer drove but could do his own grocery shopping and cooking without difficulty. He paid many bills through autopay and could manage cash without trouble. Someone would double check his finances for him. Mr. Byrd reportedly managed his medications without assistance. He denied any sleep difficulty and was prescribed medication to help with sleep. Mr. Byrd reported improved mood and feeling that he was "back in life again" due to improved language functioning. Due to his history of stroke with ongoing language difficulties as well as impaired multi-tasking and comprehension difficulties, screening measures conducted by telephone were impacted, and it was noted that an in-person evaluation was indicated. It was recommended Mr. Byrd continue in mental health treatment for his depressive symptoms and to use compensatory strategies to aid with communication. It was further suggested that speech therapy be contacted to re-initiate treatment if recommended by the treating providers.

Mr. Byrd was admitted to Baltimore VA Medical Center on 07/24/20 due to back pain. He underwent extension of fusion, L2-pelvis and anterior lumbar interbody fusion of L4-5 and L5-S1 on 07/30/20. Mr. Byrd was discharged to rehabilitation on 08/06/20.

Baltimore VA Medical Center records reflect that Mr. Byrd attended five sessions of physical therapy from 07/31/20 until 08/06/20. Mr. Byrd was subsequently transferred to an outside rehabilitation facility in Silver Springs.

Premorbid Medical Records Review

Mr. Byrd's active problem list from the Atlanta VA Medical Center prior to 11/15/16 included:

- Senile nuclear cataract
- Hypermetropia
- Single person
- Acne
- Post-laminectomy syndrome
- Low back pain
- Housing adequate
- Abscess of anal and rectal regions
- Cervical radiculopathy
- Living in poverty
- Cervicalgia
- Dog bite
- Hyperlipidemia
- Impotence of organic origin

- Smoker
- Family history of colon cancer
- Cervical spine laminectomy
- Cervical spine fusion
- Depression
- Benign essential hypertension

Documented active medications prior to Mr. Byrd's 11/15/16 admission:

- Atorvastatin 80 mg, 1/2 tablet daily
- Trazadone 100 mg, 1 tablet at bedtime
- Depakote 25 mg, 3 tablets at bedtime
- Cyclobenzaprine 10 mg, 1 tablet three times daily as needed for muscle spasm
- Hydrochlorothiazide 25/Lisinopril 20 mg, 1 tablet daily
- Nortriptyline 10 mg, 2 capsules daily
- Hydroxyzine 25 mg, 4 capsules every 6 hours as needed

Premorbid medical records from Baltimore VA Medical Center are reviewed and summarized:

12/16/07: Presented to ED due to "cyst to face a neck." Neurological examination notes that Mr. Byrd was alert, oriented to person, place and time; cranial nerves 2-12 intact and symmetric; normal gait, no gross motor or sensory deficits. He was prescribed Bactrim and discharged.

03/05/11: Seen in ED stating that he was "planning to transfer care from Georgia to Baltimore" due to an illness in the family and that he needed refills of his current medications. Mr. Byrd was prescribed a five-day supply of naproxen, HCTZ/lisinopril, methocarbamol, citalopram and simvastatin as well as a three-day supply of hydrocodone.

03/11/11: Evaluated in ED due to abscess of back and neck, treated with incision and drainage. It was noted that he was taking citalopram for "mood."

03/12/11: A Primary Care Comprehensive History and Physical was entered for Mr. Byrd. His diagnoses were listed as chronic neck pain, depression, neck wound, and hyperlipidemia. He was referred to the mental health clinic.

03/25/11: Treated in the ED for multiple cystic lesions on face and chronic right shoulder pain. Mr. Byrd was prescribed doxycycline, methocarbamol, hydrocodone, naproxen and an analgesic rub.

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04/29/11: Presented to Primary Care Clinic and assessed with hypertension, hyperlipidemia, marijuana use, neck pain S/P laminectomies and fusion, depression, impotence of organic origin, acne cheloidalis nuchae, and folliculitis barbae. Mr. Byrd was continued on lisinopril/HCTZ, simvastatin, and vardenafil, and encouraged to follow up in the mental health clinic. Prescriptions that were also continued included methocarbamol, naproxen, analgesic rub and citalopram for the depressive component. Gabapentin was added. Mr. Byrd was referred to the Chronic Pain Clinic and Dermatology Clinic.

06/08/11: Mr. Byrd was evaluated in the Mental Health Clinic for a psychotropic medication evaluation to "determine need for initiation of psychotropic medication and/or psychotropic adjustment" for symptoms of mood dysregulation. Mr. Byrd endorsed an exacerbation of depressed mood over the previous five years and that he had been taking Celexa 20 mg daily for one and one-half years. He reported that Celexa had not been effective in treating his depressed mood. It was noted that Mr. Byrd endorsed daily marijuana use. The evaluating clinician's diagnoses were listed as substance induced mood disorder versus bipolar II/mood disorder, and cannabis dependence. He was prescribed sertraline 50 mg daily and trazodone 50 mg daily.

06/09/11: Diagnosed with cystic structures on face, prescribed erythromycin during consultation with Dermatology service. Mr. Byrd reported that he was no longer taking bupropion.

06/12/11: Evaluated in ED due to recurrent cyst over left temple, nape of neck and right cheek, and right shoulder discomfort. Mr. Byrd's noted medications included sertraline and trazodone.

12/11/15: Presented to ED reporting that he was from out of town and almost out of diclofenac for chronic back pain. Mr. Byrd was prescribed diclofenac and a limited supply of Vicodin.

Records from DeKalb County Service Board are reviewed and document that Mr. Byrd received mental health services at this facility from 03/29/16 through 10/25/16 due to bipolar II disorder. It was noted during his most recently available clinical report that Mr. Byrd was to continue citalopram and Depakote, as well as to taper trazodone and increase the ziprasidone dosage.

A VA social worker visited Mr. Byrd's apartment on 11/02/16 as part of weekly continuity of care and for case management purposes. She noted that the apartment was neat, clean and well organized. Mr. Byrd reported being in constant pain and was hoping that the surgery scheduled would help. The social worker reported that

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Mr. Byrd was oriented x 4 with a logical and goal-oriented thought process. His mood was appropriate, and he did not present under any distress. It was documented that Mr. Byrd demonstrated the ability to maintain housing, medical and mental health stability.

This completes our review of the medical records provided.

III. INTERVIEW AND EVALUATION

A comprehensive team interview and evaluation was performed with Tommy Byrd by telemedicine on 07/17/20 due to the COVID-19 pandemic with limitations for travel. This initial evaluation was performed over three hours and five minutes, from 10.00 am to 1:05 p.m., by Kristi B. Bagnell, MD, CLCP and Dan M. Bagwell, BSN, RN, CLCP, CCM, CDMS. Mr. Byrd's half-brother, William Thomas, was present throughout the initial evaluation. Mr. Byrd was subsequently evaluated by David J. Altman, MD, CLCP, in follow-up on 10/07/20. With the subsequent evaluation of Mr. Byrd by Dr. Altman, Mr. Thomas and Mr. Byrd's son, Lorenzo Byrd, were both present.

GENERAL

Mr. Byrd is currently 62.7 years of age. He is a divorced, English speaking, right hand dominant, African American male who reported that he is 6'3" in height and weighs 185 pounds, which may be a decrease of a few pounds from prior to his stroke. He requires prescriptive lenses mostly for reading. Mr. Byrd reported using a cane for ambulation as chronic back pain and pain into his legs limit him to walking only short distances. He endorsed 8/10 in pain severity in the back radiating into the right more than left legs and into his feet. Mr. Byrd stated that he had taken meloxicam and Flexeril on the morning of the evaluation. He presented as alert, answering questions slowly, and at times required an explanation of the question from his brother. At the second evaluation, Mr. Byrd endorsed 5-6/10 lumbar and left lower extremity pain after having taken pain medication.

By history provided, Mr. Byrd underwent a lumbar fusion surgery and at some time after the surgery, he was found to have had a stroke. He continues to have significant back pain and is scheduled to have an additional lumbar surgery soon.

SOCIAL HISTORY/HABIT

Mr. Byrd was born on 05/13/58 in Griffin, Georgia. He currently resides in Baltimore, Maryland and receives all of his medical care at the Baltimore VA Medical Center.

Mr. Byrd completed high school and two years of college courses at Prince George's Community College. He then served in the United States Army from about 1978 to 1986, reaching the rank of Staff Sergeant (E6). Mr. Byrd provided computer services and repair for Hawk missiles. After discharge from the Army, he provided foster care services for about 20 years, keeping 4-5 children at any given time, sometimes for months and sometimes for years. He was compensated per child to provide a home and parenting. Mr. Byrd reported that he receives 60% service-connected disability benefits from the Veteran's Administration of \$1100/month. He therefore does not

receive Social Security Disability Income. He had been unemployed for many years at the time of our evaluation.

Mr. Byrd has been divorced for many years, having been married once for about 8 years. He has one son, Lorenzo Byrd, who is 40 years of age and has three children of his own, aged 1, 8 and 20 years. Mr. Byrd has a girlfriend, Gail Harris. Ms. Harris has been a longtime friend of his, but Mr. Byrd's "girlfriend" over the last 3 ½ years.

Mr. Byrd resides with his maternal half-brother, William Thomas, and Mr. Thomas' wife and two children. He previously was living with his son, Lorenzo, after the stroke, but has lived with the Thomas' for about two years. Prior to the stroke, Mr. Byrd lived independently in his own apartment. The Thomas residence is a two-level home with a basement, four bedrooms, two-and-one-half bathrooms, and four entrances. There is an enclosed two-car garage. Mr. Byrd's bedroom is on the second level and there are 15 steps up to his room. The staircase has a bannister and he utilizes his cane and the bannister to manage the stairs. Mr. Byrd uses a shower as the bathroom on the level of his bedroom does not have a bathtub. The flooring is linoleum in the wet areas and carpet in the bedrooms and living area. There are two steps at all entrances with no handrails or grab bars. At a minimum, an ADA height toilet is needed, along with a Washlet, grab bars and general wet area safety. He reported falls initially after his stroke and now occasionally experiences dizziness and difficulties with his balance. Mr. Byrd plans to remain in the general area for the foreseeable future, likely with his half-brother or son.

Mr. Byrd has not driven since the stroke and stated that he "doesn't want to get lost." His half-brother, Ms. Harris, Lorenzo or the VA picks Mr. Byrd up for appointments. He does utilize electric scooters in shopping centers.

Family History

Mr. Byrd's father is deceased, having passed away at approximately 18-19 years of age by suicide. His mother was deceased at 50 years of age due to colon cancer. William Thomas, Mr. Byrd's maternal half-brother, is 53 years of age and treated for lumbar pain. Mr. Byrd also has four full siblings. His sister is treated for rheumatoid arthritis and his other siblings were stated as healthy.

SIGNIFICANT PREMORBID MEDICAL HISTORY

- Neck fusion surgery in his late 20s
- Hypertension, treated for about 10 years
- Lumbar pain for about 7 years
- Hypercholesterolemia for years
- GERD for years
- History of depression, some medications in past but did not take for long

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- Recently had an increased blood glucose level, monitoring for now
- Recurrent abscess formation

INPATIENT HOSPITALIZATIONS [This injury]

- 11/15/16: Atlanta VA Medical Center, lumbar fusion surgery, stroke
- 07/30/20: Baltimore VA: lumbar surgery with removal of rods (per son)

CURRENT MEDICAL TREATMENT [All care at Baltimore VA Medical Center]

Physician Care

- Dr. Purvis, Primary Care Physician. Visits are every three months and his last visit was about 1-2 months before our evaluation. Mr. Byrd was found to have a slightly high glucose that Dr. Purvis is monitoring for now.
- Dr. Gelb, Spine Surgeon.
- Pain Management. Had spinal injections about 1 year ago, and infusions twice, last about 4-5 months prior to our evaluation. Mr. Byrd was unsure if these were ketamine infusions. Another infusion was reportedly planned.
- Neurology. Recently had possibly a vascular flow study.
- Dermatology. History of recurrent abscess formation (hidradenitis suppurativa per medical records).
- Psychiatry. Initiated on Remeron after stroke.

Therapeutic Services

- Mr. Byrd was receiving physical therapy prior to the COVID-19 pandemic. It had been postponed but they were planning to restart. His pain had limited some of his physical therapy.
- Speech/cognitive therapy weekly before COVID-19, also postponed at the time of our evaluation.
- Mr. Byrd's brother reported that he had received psychological counseling until COVID, around 03/2020.

PAIN ASSESSMENT

- Low back pain daily and constant, 8/10 pain level, and up to 10/10 at its worst. Radiates to the right more than left legs and feet. Described as "aching" and "throbbing." Mr. Byrd began to express frustration with the inability to describe his pain and stated that he "couldn't find the words." He then became somewhat agitated.
- Reported occasional headaches.

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- On 10/07/20, Mr. Byrd stated that he was experiencing constant, daily, 7/10 radicular (left greater than right) low back pain that was associated with variable muscle cramps. He also endorsed bilateral shoulder pain approximately every other day.

MEDICATIONS (per bottles)

- Meloxicam 15 mg daily
- Cyclobenzaprine 10 mg twice daily
- Naproxen 500 mg twice daily
- Doxycycline 100 mg twice daily (for premorbid hidradenitis suppurativa)
- Clindamycin 1% roll-on twice daily (for premorbid hidradenitis suppurativa)
- ASA 81 mg daily
- Lisinopril daily
- Atorvastatin 80 mg, ½ tablet daily
- Pantoprazole 40 mg daily (prescribed by Baltimore VA)
- Remeron 30 mg at bedtime
- Viagra for about 10 years
- Has used prescriptive lidocaine patches in the past
- Gabapentin 300 mg po three times daily

DIAGNOSTICS

- Last lumbar MRI about 1 year ago
- EEG about 2 years ago
- Possibly vascular testing of lower extremities recently
- Lab work about 1-2 months ago

HOME HEALTH SERVICES

Mr. Byrd's half-brother reportedly assisted him with personal care (i.e. transfers into the bathtub), but Mr. Byrd has not received any personal care assistance through an agency.

EQUIPMENT AND SUPPLIES

- Single-point metal cane
- Rolling walker, no longer uses
- Heating pad
- TENS unit in past but not effective
- No reachers or grabbers
- No scooter, but uses while shopping and would like to have for community mobility

- OTC analgesic creams in past without significant relief

ACTIVITIES OF DAILY LIVING

Mr. Byrd reported that he is in bed for sleep at approximately 11:30 p.m. and is up for the day at approximately 7:00 a.m. While he initially reported awakening with lumbar pain, Mr. Byrd denied insomnia since starting mirtazapine during the 10/07/20 re-evaluation.

Mr. Byrd is independent for basic activities of daily living (aside from intermittent assistance with shower transfers). He now requires assistance for cooking, laundry and housework, in that he has difficulty standing for very long, needs someone to carry things for him, and is unable to complete heavier household tasks. His family will not allow him to work the gas stove secondary to his memory issues. He is able to microwave meals for himself. Mr. Byrd shops with family members as he does not drive due to concerns of getting lost. He utilizes the electric scooters for shopping and avoids walking in the community when possible. Mr. Byrd has experienced confusion and frustration with money transactions. His brother or girlfriend manage his finances. Mr. Byrd denied any bladder or bowel incontinence. He has used Viagra for erectile dysfunction for about 10 years.

Prior to this injury, Mr. Byrd had reportedly enjoyed the outdoors (fishing) as well as driving and working on his race car. He also enjoyed playing with his nieces, nephews, and grandchildren. All these activities have been significantly curtailed since the stroke. Mr. Byrd stated that he now spends his time watching television or social media and reading.

PSYCHOSOCIAL OBSERVATIONS:

Mr. Byrd was found to be oriented to person, place, time and situation. His speech was slow, and he had some difficulty understanding the questions being asked. He became confused by the end of the evaluation, then agitated as his brother tried to assist him. Mr. Byrd was able to recall 2/3 items upon both recent and remote memory testing, even with cues. He performed 2/5 serial 7 calculations correctly and scored 5/5 when attempting to spell "WORLD" backwards. He exhibited concrete proverb interpretation. When he was asked how his injury had most changed his life, he replied: "Allowed me to lose a lot of people in my life." Mr. Byrd became very emotional at this point and began to cry. At the re-evaluation, Mr. Thomas stated, "he used to be very active and now he can't do much at all...lost his housing".

With regard to his relationship with his girlfriend, Mr. Byrd reported that he had gotten "closer" to Ms. Harris since the stroke.

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PHYSICAL EXAMINATION:

General:

Please refer to the above mental status examination. Video conferencing via FaceTime.

Skin:

Hyperpigmented patches over bilateral cheek regions.

HEENT:

Appeared to have conjugate gaze and intact extraocular movements upon testing. No facial asymmetry, normal tongue movement, able to shrug shoulders.

Neck:

Appeared to have limitations in range of motion, especially with neck extension (history of cervical fusion).

Extremities:

Mr. Thomas assisted with resistance of movements, apparent weakness of right more than left lower extremity major muscle strength testing and limited by pain.

Back/Spine:

Incisional scar is apparent over the lumbar spine. There were deficits in range of motion in back extension more than flexion, and in bilateral lateral flexion.

Neurological:

Noted deficits in receptive speech and auditory processing of information which worsened as he tired toward the end of the evaluation. Mr. Byrd exhibited a slow, antalgic gait, favoring the right side. He was unable to perform heel-to-toe tandem walking or to walk on his heels or toes.

Impressions:

1. Left middle cerebral artery infarct after a lumbar fusion revision/extension on 11/15/16
2. Persistent aphasia, impaired comprehension, memory deficits
3. Treatment for non-epileptic seizures with Dilantin post-stroke

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4. Postoperative flatback syndrome
5. Severe pain with radiculopathy affecting his ambulation
6. Revision lumbar surgery completed in July of 2020
7. Worsened symptoms of depression post-stroke
8. Adverse effects to activities of daily living and overall quality of life

IV. DISCUSSION

Tommy Byrd sustained a left middle cerebral artery ischemic infarct after undergoing lumbar fusion revision surgery on 11/15/16. At almost four years post-stroke, Mr. Byrd continues to experience aphasia, memory deficits, and impaired comprehension for which he is undergoing speech/cognitive therapy. Mr. Byrd's cognitive and language impairments have also exacerbated his depression. These sequelae have adversely affected impacted his activities of daily living, overall quality of life and preclude Mr. Byrd from living independently. He had also been diagnosed with postoperative flatback syndrome and his spine surgeon completed an additional lumbar surgery in July of 2020. Mr. Byrd continues to endorse back pain with radiculopathy which has significantly impaired his ambulation.

Stroke/Cerebral Vascular Accident

Stroke is the fifth leading cause of death and a major cause of serious disability for adults. Approximately 795,000 people in the United States have a stroke each year, with 7.0 million stroke survivors >19 years of age [Virani, et al., 2020]. Furthermore, stroke profoundly changes the lives not only of those who experience the event, but also of their families and other caregivers. A cerebral vascular accident (CVA), or stroke, usually occurs as a result of an ischemic event within the brain. The unified pathophysiology of stroke is cerebral ischemia from compromise of cerebral blood flow. CVA may lead to permanent physical and/or sensory impairment and cognitive deficits. The specific vascular territory of the stroke will determine the clinical presentation. Alterations in tone, paresis, incoordination, incontinence, and motor programming deficits, as well as speech and language disorders may all be consequences of a stroke. The location and temporal development of cerebral injury vary with the etiology. The middle cerebral artery (MCA) is the largest cerebral artery and the vessel most commonly affected by a cerebrovascular accident. Infarcts that occur within the vast distribution of this vessel lead to diverse neurological adverse outcomes [Slater, 2020].

During the first days after an ischemic stroke, neither progression nor outcome can be predicted. Approximately 20% of patients expire during acute hospitalization and the mortality rate increases with age. Common medical complications of stroke include DVT (2-10% of patients), dysphagia with aspiration pneumonia, cardiac dysrhythmias and urinary tract infections resulting in urosepsis. Falls are another common cause of morbidity and mortality and occur in approximately 25% of patients, with serious sequelae in about 5% [Langhorne, et al., 2000]. Approximately 3% to 5% of stroke patients will suffer a remote seizure, 54% to 66% of whom will develop epilepsy (defined as 2 or more unprovoked seizures) [Sacco, 2006].

The extent of neurologic recovery following stroke depends upon the patient's age and general state of health as well as on the location and size of the infarct. Impaired consciousness, mental deterioration, aphasia, or severe brainstem signs are generally associated with a poor prognosis. Complete recovery is uncommon, but the sooner improvement begins, the better the long-term prognosis. Patients with hemispheric infarcts are at considerably higher risk for cognitive-behavioral syndromes, and executive deficits represent a robust cognitive predictor of poor functional recovery after stroke [Lesniak, 2008]. About 50% of patients with moderate or severe hemiplegia, and most with milder deficits, recover functionally by the time of discharge and can eventually care for their basic needs, have a clear sensorium, and can walk adequately, although use of an affected limb may be limited. Any deficit remaining after 6 months is likely to be permanent, although some patients continue to improve slowly. Cerebral infarction recurs relatively often when the etiology is thrombotic, and each recurrence is likely to add to the neurologic disability. Approximately 25% of all strokes are recurrent [Stroke, 2005]. This would of course be the case when the etiology of stroke is associated with an underlying disease process.

Individuals suffering from stroke generally improve in two different but related ways. The first type of recovery, a reduction in the extent of neurological impairment can result from natural spontaneous neurological recovery and from the effects of treatments that limit the severity or extent of the acute stroke or from other interventions that enhance neurological functioning. This form of recovery presents clinically as improvement in motor control, language ability, or other primary neurological functions. The second type of recovery seen following stroke is the improved ability to perform daily functions in the stroke victim's environment within the limitations of his/her physical impairments. The ability to perform these tasks can improve through adaptation and training in the presence or absence of natural neurological recovery.

The preponderance of literature concerning treatment of stroke is focused upon the acute phase, the immediate treatment and the acute period of rehabilitation following stroke. As such, a great deal of information is available about the epidemiology of acute stroke, including risk factors for occurrence and subsequent mortality. There is much less information concerning the long-term physical, social, and emotional dysfunction that may ensue. However, recent data indicate persistent benefits of long-term rehabilitation [Teasell et. al., 2014]. Some longitudinal studies have indicated that between one-fourth and one-third of stroke patients experience persistent dependency in one or more activities of daily living by six months after their strokes. Information about social and emotional disabilities is less readily available, but these are probably more prevalent.

Even mild deficits from a stroke can have enormous functional consequences. Understanding the social and functional consequences for patients and their families

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is crucial. This is especially true with continued pressures to reduce lengths of hospital stay and patient discharges before much functional recovery has occurred. In addition to the health benefits of rehabilitation therapy following stroke, this period of time is also important to allow for functional recovery to occur and for the education and mobilization of families.

Depression and anxiety in patients with strokes are often under-recognized. A recent study in the Journal of Stroke and Cerebrovascular Disease reports that almost half of patient respondents suffered from anxiety or depression two (2) to five (5) years after discharge from a specialized rehabilitation hospital [Bergersen, 2010]. Depression is often cited as the most frequently occurring behavioral problem among stroke victims. Two depressive syndromes, major depression and minor (dysthymic) depression, have been reported in patients with stroke lesions. The most frequent symptoms of major depression associated with stroke are sadness, anxiety, tension, loss of interest and concentration, sleep disturbances with early morning awakening, loss of appetite with weight loss, difficulty concentrating and thinking, and thoughts of death [Lipsey, 1986]. Minor post-stroke depression consists of sadness or anhedonia (i.e., loss of pleasure), and at least one, but fewer than four, additional symptoms of major depression [Starkstein, 2000]. Psychological counseling is almost universally recommended along with appropriate pharmacotherapy to help stroke patients overcome these adverse emotional states and focus on functional recovery. The family should also receive appropriate counseling to provide them with important education about the patient's response to stroke and ways to best interact with them through the recovery process.

Stroke is also associated with an increased risk of dementia. Recent data indicate that individuals with midlife stroke are at significantly higher risk for the development of cognitive deterioration with age compared with controls, as well as accelerated cognitive decline over 10 years [Kaffashian et al., 2012].

V. PROJECTED HEALTH CARE NEEDS

As a result of his left middle cerebral artery ischemic stroke, Mr. Byrd will require physician follow-up from a physiatric (PM&R) physician specialist or neurologist throughout his life. These physician specialists are particularly suited to address the unique rehabilitation needs of individuals who have experienced a cerebrovascular accident. Physician services are indicated to coordinate and monitor the rehabilitation program, including the multidisciplinary team of therapists, prescribe medications, order hematologic and radiologic surveillance studies, provide for medical management, and to monitor the needs for durable medical equipment items. The physiatrist or neurologist usually serves as the primary physician for stroke related needs and associated subspecialty referrals. Mr. Byrd has been previously treated for non-epileptic seizures with Dilantin. Should he experience a recurrence of these episodes, specialty medical care, diagnostic testing, laboratory studies, and pharmacotherapy will be indicated.

Mr. Byrd has experienced accelerated neurocognitive decline as a result of his left MCA ischemic stroke for which we have projected the cost of memory agents. The most commonly used classes of agents include cholinesterase inhibitors (i.e. Aricept, Exelon, or Razadyne) and NMDA receptor antagonists (i.e. Namenda, Namenda XR).

Routine diagnostics, including radiologic studies, are warranted to monitor for any changes to Mr. Byrd's brain structure, such as premature atrophy or to evaluate any changes cognitive-behavioral functioning. He will need additional laboratory studies (i.e., CBC, serum chemistries), to monitor for potential adverse effects related to his projected pharmacotherapy.

We project that Mr. Byrd will continue to require speech/cognitive therapy over the following two years to maximize his language and cognitive functioning as much as possible in light of his aphasia and impaired comprehension. Intermittent therapeutic interventions will remain critical to avoid serious setbacks and compromised cognitive health. Provisions for augmentative and alternative communication (AAC) due to Mr. Byrd's persistent post-stroke aphasia have been included in the Life Care Plan as well as speech therapy evaluations with new equipment.

Mr. Byrd's previous history of depression has been worsened by his stroke, which has resulted in cognitive deficits and aphasia. As such, we have projected modest provisions for supportive adjustment counseling to process life changes and to develop coping strategies that will assist Mr. Byrd as he ages with the sequelae of his left MCA ischemic stroke.

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The changes in an individual's life resulting from permanent neurocognitive and behavioral deficits also has a profound effect upon family dynamics. As such, reasonable access to a counselor specializing in disability adjustment therapy is appropriate to help Mr. Byrd's family learn ways to adjust to these life changes, cope with the loss, and form a better understanding of Mr. Byrd's stroke injury, so that they can interact with him in ways that promote adaptive responses.

At over 4 years post-stroke, Mr. Byrd has continued to require assistance with instrumental activities of daily living including cooking, laundry, housework, shopping, transportation, finances, and to some extent, communication. He ambulates utilizing a cane due to low back pain and for stability to mitigate his risk for falls. Mr. Byrd also reports occasional dizziness and loss of balance. Mr. Byrd stated that he utilizes motorized scooters while shopping and is limited in community ambulation. Projections for this Life Care Plan reflect Mr. Byrd's needs related to his middle cerebral artery infarct and the secondary complications as a result. However, we have not included cost projections for items that Mr. Byrd would likely have required in the absence of his stroke (i.e., pain medications, NSAID pharmacotherapy, Orthopedic follow up, radiologic studies of the lumbar spine, household/lawn maintenance services, home modifications).

In order for Mr. Byrd to be able to live at a family member's home and to remain in the general community, he will continue to depend upon his half-brother, or other family members to provide general oversight and to manage his personal affairs. We anticipate that Mr. Byrd will continue supported life care in the home of his half-brother until Mr. Williams becomes 60 years of age, at which time Mr. Byrd would transition to an appropriate residential life program. Planning should be ongoing to ensure that appropriate options are in place in the unfortunate event that his family or other caregivers become unable to care for him, such as untimely death, early disability, or inability to manage his needs, necessitating immediate alternative placement of Mr. Byrd into a residential care program that is dedicated to brain injury survivors.

To support the highest level of functional independence in a safe and successful manner while in supported living in the home setting, the services of a life skills trainer (LST) or home health aide (HHA)/certified nursing assistant (CNA) will be necessary to provide Mr. Byrd with the support, supervision, and assistance that his family members have performed within their capacities.

The LST/HHA/CNA will provide a therapeutically stimulating environment for Mr. Byrd at home by assisting him to follow a specific plan of care that can be outlined by his physiatrist or neurologist. The LST/HHA/CNA will assist Mr. Byrd with higher level executive functioning skills and engage him in activities throughout the day that are designed to emulate a therapeutically stimulating environment. This includes planning and organizing household activities, exercise, recreation, and other

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community outings, as well as budgeting and basic management of money for routine expenditures and assistance with instrumental activities of daily living as needed. The LST/HHA/CNA will also be able to provide essential and longer distance (i.e., highway) transportation.

At which time Mr. Williams reaches 60 years of age or should Mr. Byrd's family members become unable or unwilling to provide his general supervision, Mr. Byrd would transition to an appropriate long-term residential care program dedicated to brain injury survivors. This will include the costs (per diem) associated with a program that can provide for Mr. Byrd's general care and supervision that is designed to meet his specific needs in a safe and therapeutically stimulating setting that is least restrictive, and thus promotes the highest possible level of independent functioning. These supported life care programs can also offer Mr. Byrd an opportunity for a network of peers of similar age and disability in a shared living environment. This plan provides for the average per diem costs identified through survey of numerous programs providing this level of quality care.

Mr. Byrd's family will have many options for appropriate programs throughout the United States to meet this need. We have identified programs nationwide, which are reflected in the Cost Data, Reference Sources, and Vendor Surveys below. The average per diem rates for the level of care anticipated for Mr. Byrd are reflected in the Life Care Cost Analysis.

We respectfully reserve the opportunity to review any additional records that may become available and to supplement our report with any specific recommendations provided by Mr. Byrd's treating physicians or other care providers if deemed necessary.

LIFE EXPECTANCY

The average residual life expectancy for 62-63-year-old non-Hispanic black males living in the United States is 18.0 (18) years. This is based upon statistical data obtained from the November 17, 2020 National Vital Statistics Reports; Vol. 69, No. 12, Table 11, Life Table for non-Hispanic black males: United States, 2018. This represents the average number of years of life remaining for race and gender-matched persons who have attained a given age. As such, it is a conservative projection of an individual's life expectancy but appropriate for the purpose of developing a life care cost analysis.

Premature demise among individuals diagnosed with mental deficits associated with brain injury has generally been linked to the presence of profound physical and mental handicaps, with severely impaired mobility (immobility) representing the most significant factor negatively impacting life expectancy.

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In view of the fact that the National Vital Statistics Reports of the United States provides an “average” residual life expectancy based upon current age, gender and race-matched peers living in the United States, this should be considered a conservative, yet appropriate projection for estimating Mr. Byrd’s individual life expectancy. Therefore, no reduction has been applied to the average residual life expectancy for the purpose of preparing Tommy Byrd’s life care plan.

COST PROJECTIONS

An itemization of costs is prepared in Table I of this life care plan, the Life Care Cost Analysis. This analysis includes the recommendations for health care goods and services that can be projected within a reasonable degree of medical and rehabilitation probability as they are related to Tommy Byrd’s middle cerebral artery stroke.

Current cost data have been utilized and represent the fair marketplace for goods and services in the geographic domain where the majority of care is anticipated. Cost information is procured and routinely updated from healthcare databases and other cost data sources that we consider to be among the most reliable in the marketplace. In developing this life care plan, the methodological approach and established standards and guidelines were utilized as embraced by other peers in the industry, the International Academy of Life Care Planners (IALCP) and the International Association of Rehabilitation Professionals (IARP).

In addition to the goods and services that can be projected within a reasonable degree of medical probability, potential care needs are also identified separately. In this context, potential care needs represent other goods and services and treatment of medical complications for which the risk of occurrence is considered significant as the result of his injuries, although at this point in time, the probability of occurrence cannot be determined to exceed 50%.

The Life Care Cost Analysis is presented in specific categories designed to aid economic or financial experts with long-term financial planning and resource allocation. No adjustments have been made within the context of this plan for inflation, projected real rates of growth or present value.

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COST DATA, REFERENCE SOURCES AND VENDOR SURVEYS

Physician & Therapeutic Services, Hospitalization & Diagnostics

- Context4 Healthcare, Inc. 2020
- Physicians' Fee Reference 2020 Pricing Program [Database]

Medications

- CVS
- Drugs.com
- GoodRX
- Walgreens
- Walmart
- WellRX

Medical Case Management Services

- Aurora Case Management
- Broadspire/Crawford Health Care Management
- Clawson & Associates
- CorVel Corp
- Ohara, LLC.
- Professional Case Management
- Roberts Consulting, PLC-Quality Medical Case Management
- Triune Health Group

Equipment & Supplies

- Active Medical
- Allegro Medical
- Amazon
- Apple [EADL]
- Barnes and Noble [EADL]
- Bed Bath & Beyond
- Best Buy [EADL]
- Bidet King
- BrainHQ.com
- Bruno Independent Living Aids
- Columbia Medical
- CVS Pharmacy
- Drugsupplystore.com
- HelpMedicalSupplies
- Independentliving.com
- LG Med Supply
- Live Oak Med.com
- Lumosity
- Medicalproductsdirect.com
- OUC Medical
- Performance Health [formerly Patterson Medical]
- PHC-Online
- Quality Medical Supplies
- RehabMart
- Southeastern Medical Supply
- Southwest Medical
- The Wright Stuff
- Walgreens Pharmacy

Augmentative Communication Devices

- Augmentative Communication Consultants, Inc.
- Linkassistive.com
- Prentrom.com
- Saltillo.com

Home Health Services [Servicing Laurel, Maryland]

- Beloved Home Healthcare
- BrightStar Care
- Emmanuel Home Health Services
- Genworth Cost of Care Survey
- Housen Home Care
- Lincoln Financial Group: What Care Costs

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- OTIK Health Care Services
- Right at Home

Supported Life Care Programs

- Acadiana Brain Injury Center
- Hope Network NeuroRehabilitation (Multiple programs, 1 state)
- Learning Services (Multiple programs in 6 states)
- NeuLife Rehab
- Neuro RehabCare
- NeuroRestorative (Multiple programs in 26 states, including Maryland)
- Pate Rehabilitation (Brenlee Creek Rehabilitation)
- Quality Living, Inc
- Rainbow Rehab Centers
- Rehab Without Walls NeuroSolutions (Programs in 3 states)
- ReMed, Neurological Rehabilitation Living Center of Louisiana
- Texas NeuroRehab Center
- The Community Living Center at NRI
- Tideway on Galveston Island (Transitional Learning Center program)
- Tree of Life

TABLE I**LIFE CARE COST ANALYSIS****TOMMY BYRD**

Date of Report: 01/08/21
 Date of Birth: 05/13/58
 Current Age: 62.7 Years (63)
 Gender: Male
 Ethnicity: African American
 Average Residual Life Expectancy: 18.0 (18) Years
 Projected Residual Life Expectancy: 18 Years

Impressions:
 L MCA Infarct s/p Lumbar Fusion Revision 11/15/16;
 Persistent Aphasia, Memory Deficits,
 Impaired Comprehension;
 Treatment for Non-Epileptic Seizures Post-Stroke;
 Exacerbation of Premorbid Depression;
 Adverse Effects to Instrumental ADLs, Quality of Life.

| Service/Item | Begin At Age | Duration Years | Frequency per Year | Average Unit Cost | Annual Cost | Life Time Cost |
|--|--------------|----------------|--------------------|-------------------|-------------|----------------|
| Outpatient Physician Services | | | | | | |
| PM&R MD/Neurologist | 63 | 18 | 3.5 | \$218.62 | \$765.18 | \$13,773.21 |
| Psychiatrist (Differential) | 63 | 18 | 2.5 | \$252.10 | \$630.24 | \$11,344.30 |
| Therapeutic Services | | | | | | |
| Psychotherapy/Adjustment Counseling | 63 | 1 | 24 | \$206.07 | \$4,945.68 | \$4,945.68 |
| Psychotherapy/Adjustment Counseling | 64 | 3 | 1/3 | \$4,945.68 | \$1,648.56 | \$4,945.68 |
| Family Counseling | 63 | 1 | 24 | \$203.98 | \$4,895.47 | \$4,895.47 |
| Speech/Cognitive Therapy | 63 | 2 | 52 | \$209.58 | \$10,898.40 | \$21,796.80 |
| Speech/Cognitive Therapy | 65 | 16 | 1/3 | \$5,030.03 | \$1,676.68 | \$26,826.83 |
| Augmentative Com. Specialist | 63 | 18 | 1/4 | \$2,301.29 | \$575.32 | \$10,355.80 |
| Medical Case Management (Differential) | 63 | 18 | 4 | \$438.75 | \$1,755.00 | \$31,590.00 |
| Medications | | | | | | |
| Memory Agents | | | | | | |
| Cholinesterase Inhibitor | 63 | 18 | 365 | \$6.58 | \$2,400.15 | \$43,202.76 |
| NMDA Receptor Antagonist | 63 | 18 | 365 | \$10.57 | \$3,857.67 | \$69,438.00 |
| Diagnostics | | | | | | |
| CT/MRI (Brain) | 63 | 18 | 1/6 | \$1,824.82 | \$304.14 | \$5,474.45 |
| CBC/CMP/UA (Additional) | 63 | 18 | 1 | \$157.88 | \$157.88 | \$2,841.82 |

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| Service/Item | Begin At Age | Duration Years | Frequency per Year | Average Unit Cost | Annual Cost | Life Time Cost |
|--|--------------|----------------|--------------------|-------------------|--------------|----------------|
| Personal Care Assistance | | | | | | |
| Supported Life Care Within The Family Home Until Mr. Williams age of 60 | | | | | | |
| LST/HHA (16-24 Hours/Day) | 63 | 7 | 301 | \$490.00 | \$147,490.00 | \$1,032,430.00 |
| HHA Respite Care (24 Hours/Day) | 63 | 7 | 64 | \$588.00 | \$37,632.00 | \$263,424.00 |
| RN Supervision | 63 | 7 | 9 | \$0.00 | \$0.00 | \$0.00 |
| Supported Life Care Within a Residential-Based Brain Injury Program of Care | | | | | | |
| Average Per Diem (Facility) | 70 | 11 | 365 | \$763.95 | \$278,840.79 | \$3,067,248.68 |
| Additional Physician/PCP Mgmt. | 70 | 11 | 4 | \$201.36 | \$805.45 | \$8,859.96 |
| Equipment & Supplies | | | | | | |
| Therapeutic/Cognitive Aids | 63 | 18 | 1/5 | \$212.50 | \$42.50 | \$765.00 |
| Augmentative Communication Device | 63 | 18 | 1/4 | \$6,920.63 | \$1,730.16 | \$31,142.81 |
| During Supported Life Care Within The Family Home | | | | | | |
| Bathroom (Wet Area) Safety | 63 | 7 | 1/6 | \$607.50 | \$101.25 | \$708.75 |
| ADA Toilet (Installed) | 63 | 7 | 3/7 | \$720.00 | \$308.57 | \$2,160.00 |
| Toto Washlet/Equivalent (Installed) | 63 | 7 | 1/9 | \$1,224.00 | \$136.00 | \$952.00 |
| Potential Care Needs | | | | | | |
| Seizure Disorder (Annualized) | 63 | 18 | 1 | \$5,950.62 | \$5,950.62 | \$107,111.13 |

TABLE II**COST ANALYSIS SUMMARY****TOMMY BYRD**

| SERVICE/ITEM | LIFE TIME COST TOTALS | PERCENT OF TOTAL |
|-------------------------------|------------------------------|-------------------------|
| Outpatient Physician Services | \$25,117.51 | 0.54% |
| Therapeutic Services | \$105,356.24 | 2.26% |
| Medications | \$112,640.76 | 2.42% |
| Diagnostics | \$8,316.27 | 0.18% |
| Personal Care Assistance | \$4,371,962.64 | 93.84% |
| Equipment & Supplies | \$35,728.56 | 0.77% |
| GRAND TOTAL | \$4,659,121.99 | 100.00% |

Potential Care Needs \$107,111.13